IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of: Arnold Stamler, et al. Serial No.: 10/663,161 Filed on: September 15, 2003	Confirmation No.: 2828 Group Art Unit No.: 2433 Examiner: William J. Goodchild

For: METHOD PROVIDING A SINGLE CONSOLE CONTROL POINT FOR A NETWORK DEVICE CLUSTER

Commissioner of Patents
PO Box 1450
Alexandria, Virginia 22313-1450

APPELLANT'S BRIEF—37 C.F.R. § 41.67

Sir:

Applicants hereby submit appellants' brief on appeal pursuant to 37 C.F.R. § 41.67.

I. REAL PARTY IN INTEREST

The real party in interest is Cisco Systems, Inc. of San Jose, California (NASDAQ: CSCO), which wholly owns the assignee Cisco Technology, Inc.

II. RELATED APPEALS AND INTERFERENCES

Appellants are unaware of related appeals or interferences.

III. STATUS OF CLAIMS

Claims 1, 3-23 and 26-31 are pending in the application, and are the subject of this appeal. Claims 1, 3-23 and 26-31 were finally rejected. Claims 2, 24-25 and 32-35 were canceled during prosecution.

Claims 1, 3-5 and 26-30 are rejected under 35 U.S.C. § 103(a) as allegedly unpatentable over IBM High Availability Cluster Multi-Processing for AIX, Concepts and Facilities Guide, ("*IBM*") and further in view of Bruckert et al., U.S. Patent Publication No. 2002/0049859 ("*Bruckert*"), and Pangrac et al., U.S. Publication No. 2001/0030785 ("*Pangrac*") and Byrne et al. U.S. Patent No. 6,229,787 ("*Byrne*").

Claims 6-7 and 31-32 are rejected under 35 U.S.C. § 103(a) as allegedly unpatentable

over *IBM-Bruckert-Pangrac-Byrne* as applied to Claims 1 and 26 above, and further in view of Mittal et al., U.S. Patent Publication No. 2004-026811249859 ("*Mittal*").

Claims 8 and 11-23 are rejected under 35 U.S.C. § 103(a) as allegedly unpatentable over *IBM-Bruckert-Pangrac-Byrne* as applied to Claim 1 above, and further in view of John et al., U.S. Patent Publication 2004/0088412 ("*John*").

IV. STATUS OF AMENDMENTS

The claims were not amended after the Final Office Action mailed on March 11, 2011.

V. SUMMARY OF CLAIMED SUBJECT MATTER

The present application contains independent claims 1 and 26.

CLAIM 1

Independent claim 1 is directed generally to a method for receiving user input specifying an operation to be performed concurrently on all active routers in a plurality of active routers as a whole and only on the plurality of active routers, and automatically and concurrently performing the specified operation only on all the active routers in the plurality of active routers in a cluster, wherein the cluster comprises switches, standby routers and the active routers. Claim 1 recites *(with added reference annotations in parenthesis)*:

A method *(Para [44])*, comprising the computer-implemented steps of:

receiving, at a single console control point for a network device cluster *(Para [93], [103]-[104])*, user input specifying an operation to be performed concurrently on all active routers in a plurality of active routers as a whole and only on the plurality of active routers *(Para [48],[67], [143])*;

automatically and concurrently performing the specified operation only on all the active routers in the plurality of active routers in the network device cluster by transforming the specified operation into one or more device-specific operations for each of the active routers in the plurality of active routers *(Para [44], [64], [69]-[70], [75], [81]-[82], [113], [157])*;

wherein the user input specifies a configuration command for the network device cluster

(Para [60], [103], [163], [187]);

automatically and concurrently communicating the configuration command to each of the active routers in the plurality of active routers *(Para [49], [59], [65]; Section 2.3; Section 4.1.2)*;

wherein the network device cluster comprises a first switch device, the plurality of active routers, one or more standby routers, and a second switch device *(Para [44]-[45], [48], [51], [53])*;

wherein the first and second switch devices are associated with different networks *(Para [195])*;

concurrently reconfiguring each of the active routers in the plurality of active routers in the network device cluster based on reconfiguration information *(Para [48], [69], [143])*;

wherein the reconfiguring causes a change of one or more connections between the active routers in the plurality of active routers and the switch devices *(Para [44], [55], [58], [60], [62], [65])*.

CLAIM 26

Independent claim 26 is directed generally to an apparatus comprising one or more processors and means for receiving user input specifying an operation to be performed concurrently on all active routers in a plurality of active routers as a whole and only on the plurality of active routers, and automatically and concurrently performing the specified operation only on all the active routers in the plurality of active routers in a cluster, wherein the cluster comprises switches, standby routers and the active routers. Claim 26 recites *(with added reference annotations in parenthesis)*:

An apparatus *(Para [50])* comprising:

one or more processors *(Para [69], [188]-[189])*;

means for receiving user input at a single console control point for a network device cluster *(Para [93], [103]-[104])*, the user input specifying an operation to be

performed concurrently on all active routers in a plurality of active routers as a whole and only on the plurality of active routers *(Para [48],[67], [143])*;

means for automatically and concurrently performing the specified operation only on all the active routers in the plurality of the active routers in the network device cluster by transforming the specified operation into one or more device-specific operations for each of the active routers in the plurality active routers *(Para [44], [64], [69]-[70], [75], [81]-[82], [113], [157])*;

means for automatically and concurrently communicating the configuration command to each of the active routers in the plurality of active routers *(Para [49], [59], [65]; Section 2.3; Section 4.1.2)*;

wherein the network device cluster comprises a first switch device, the plurality of active routers, one or more standby routers, and a second switch device *(Para [44]-[45], [48], [51], [53])*;

wherein the first and second switch devices are associated with different networks *(Para [195]*;

means for concurrently reconfiguring each of the active routers in the plurality of active routers in the network device cluster based on reconfiguration information *(Para [48], [69], [143])*;

wherein the reconfiguring causes a change of one or more connections between the active routers in the plurality of active routers and the switch devices *(Para [44], [55], [58], [60], [62], [65]).*

VI. GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL

1. Whether Claims 1, 3-5 and 26-30 are patentable under 35 U.S.C. § 103(a) over IBM High Availability Cluster Multi-Processing for AIX, Concepts and Facilities Guide, ("*IBM*") and further in view of Bruckert et al., U.S. Patent Publication No. 2002/0049859 ("*Bruckert*"), Pangrac et al., U.S. Publication No. 2001/0030785 ("*Pangrac*") and Byrne et al. U.S. Patent No. 6,229,787 ("*Byrne*")?

2. Whether Claims 6-7 and 31-32 are patentable under 35 U.S.C. § 103(a) over *IBM-Bruckert-Pangrac-Byrne* as applied to Claims 1 and 26 above, and further in view of Mittal et al., U.S. Patent Publication No. 2004-026811249859 ("*Mittal*")?

3. Whether Claims 8 and 11-23 are patentable under 35 U.S.C. § 103(a) over *IBM-Bruckert-Pangrac-Byrne* as applied to Claim 1 above, and further in view of John et al., U.S. Patent Publication 2004/0088412 ("*John*")?

VII. ARGUMENT

A. THE CITED REFERENCES FAIL TO TEACH OR SUGGEST RECEIVING AN OPERATION TO BE PERFORMED CONCURRENTLY ON ONLY ALL ACTIVE ROUTERS IN A CLUSTER, BUT NOT ON OTHER DEVICES THAT ALSO ARE IN THE CLUSTER

Claim 1 recites receiving an operation to be performed concurrently only on **all active routers in a cluster and only on the active routers in the cluster, wherein the cluster also comprises switches and standby routers**. The switches and standby routers are not affected by the cluster operation—only the active routers are. The operation is performed on all active routers, but not on other devices in the cluster. The operation is not performed on the switches or standby routers in the cluster.

According to Claim 1, an operation is concurrently performed only on all active routers in the cluster, and for the purpose of performing the operations, all active routers in the cluster are treated as a whole.

The operation is transformed into one or more device-specific operations for each of the active routers, and the device-specific operations are performed only on all active routers, but not on other devices in the cluster. The device-specific operations are concurrently communicated to the active routers, but not to switches or standby routers that are also part of the cluster.

Claims 1, 3-5 and 26-30 are rejected under 35 U.S.C. § 103(a) as allegedly unpatentable over *IBM, Bruckert, Pangrac* and *Byrne*. The rejections should be reversed because the combined references fail to disclose the complete subject matter as recited in the claims. For example, the references fail to teach or suggest **receiving an operation to be performed only**

on all active routers in a cluster, wherein the cluster comprises switches, standby routers and the active routers, as claimed. Each of independent claims 1 and 26 recites this feature, and all dependent claims include the feature by depending from an independent claim that recites the feature.

The Examiner fundamentally errs in relying on the combination of *IBM* and *Bruckert*. Both *IBM* and *Bruckert* fail to teach or suggest an **operation to be performed only on all active routers in a cluster, but not on switches and standby routers that also belong to the cluster**, as claimed. The references also fail to teach or suggest **receiving an operation to be performed concurrently only on all active routers in a cluster, but not on switches and standby routers that also belong to the cluster,** as claimed.

1. *IBM* fails to teach or suggest an operation to be performed concurrently only on all active routers in a cluster, but not on switches and standby routers that also belong to the cluster

On page 15, the Examiner alleges that *IBM* (page 85) teaches an operation to be performed concurrently only on active routers in a cluster, wherein the cluster also comprises switches and standby routers, as claimed. Respectfully, the allegation is incorrect.

IBM does not describe an operation to be performed concurrently only on all active routers as a whole, but not on the standby routers, as claimed. On page 85, *IBM* depicts two separate resource groups (A and B) that belong to the same cluster. Group A comprises an active node A and a standby node C. Group B comprises an active node B and the standby node C. If either node A or node B fails, the standby node C takes over and performs functionalities of the failed node. However, *IBM* does not describe an operation to be performed concurrently on both active nodes A and B as a whole, but not on the standby node C. *IBM* merely describes a customized reconfiguration of the standby node C if either the node A or B fails. Hence, the Examiner's allegation that on page 85, *IBM* describes the operation to be performed only on the active routers, but not on other devices in the cluster, is unsupported by the reference or other evidence.

In *IBM*, if one of the interface cards on a particular node fails, then *IBM's* system receives an interface change request to be performed on the particular node of a cluster (*IBM*: page 25, ll. 6-12), not a request specifying an operation to be performed on **all active** routers in the cluster, as claimed. If a configuration of the whole cluster (every device in the cluster) needs to be changed, then *IBM's* system receives a request to modify a cluster definition for all devices (active routers and standby routers) in the cluster as a whole (*IBM*: page 73, ll. 28-33; page 77, ll. 6-8), not a request specifying the operation to be performed **only on all active routers** in the cluster as a whole, but not on switches or standby routers that are also present in the cluster, as claimed.

On page 92, *IBM* mentions that each of the cluster components must be properly configured on the AIX level described in detail in "AIX - Planning and Installation Guide," which requires that each device in the cluster is individually configured one at a time. However, neither *IBM* nor the Guide describes an operation to be performed concurrently only on all active routers in a plurality of active routers as a whole, but not on switches or standby routers that are also part of the cluster, as claimed.

Hence, *IBM* describes operations that are either performed on all devices (active routers and standby routers) in the cluster, or on an individual device configured one at the time. The approach is fundamentally different from the claims, and cannot support the rejection of record.

2. *Bruckert* fails to teach or suggest an operation to be performed concurrently only on all the active routers in a cluster, but not on switches or standby routers that are also present in the cluster

Bruckert does not cure the deficiencies of *IBM* with respect to an operation to be performed concurrently only on all active routers in a cluster, but not on switches or standby routers that also belong to the cluster, as claimed. *Bruckert* is merely cited to allegedly disclose a cluster that includes switches and routers (*Bruckert*: Para [27], FIGS. 1a, 1b), not the particular claimed operation. In any case, *Bruckert* does not describe that an operation can be performed only on active routers as claimed.

3. *IBM, Bruckert, Byrne* and *Pangrac*, individually or in combination, fail to teach or suggest receiving an operation to be performed concurrently only on all active routers in a cluster, but not on other devices in the cluster

IBM fails to disclose receiving an operation to be performed concurrently only on all active routers as a whole in a cluster, wherein the cluster also comprises switches and standby routers, as claimed. In *IBM*, there are no operations that are performed concurrently only on all active routers but not on the switches and standby routers that also belong to the cluster. In particular, *IBM* does not describe that a cluster comprises standby elements on which a specified operation is not performed.

Bruckert does not cure the deficiencies of *IBM* with respect to receiving an operation to be performed only on active routers, as claimed. *Bruckert* is not even cited as allegedly describing an operation that is performed concurrently only on all active routers, but not on switches and standby routers that also belong to a cluster, as claimed.

Pangrac does not cure the deficiencies of *IBM* and *Bruckert* with respect to receiving an operation to be performed only on all active routers in a cluster, wherein the cluster also comprises switches and standby routers, as claimed. *Pangrac* is merely cited to describe switches connected to different networks (*Pangrac*: Para [79]), not to describe the operation performed only on the active routers, as claimed.

Byrne does not cure the deficiencies of *IBM*, *Bruckert* and *Pangrac* with respect to receiving an operation to be performed only on active routers, as claimed. *Byrne* describes switching data traffic from a failed connection to a backup connection (*Byrne*: Abstract), not an operation to be performed only on all active routers, but not on switches and standby routers that are also in the cluster, as claimed.

Therefore, alone or in combination, *IBM, Bruckert, Pangrac* and *Byrne* do not provide the claimed approach. No combination teaches or suggests receiving an operation to be performed only on all active routers in a cluster, but not on switches and standby routers that are also present in the cluster, as recited in Claim 1.

B. THE CITED REFERENCES FAIL TO TEACH OR SUGGEST AUTOMATICALLY AND CONCURRENTLY PERFORMING A SPECIFIED OPERATION ON ALL ACTIVE ROUTERS IN A CLUSTER, BUT NOT ON OTHER DEVICES IN THE CLUSTER

The Examiner alleges that *IBM* discloses automatically and concurrently performing a specified operation on all active routers in a cluster, wherein the cluster also comprises switches and standby routers, as recited in Claim 1. Respectfully, this is incorrect. *IBM* merely mentions performing an operation either on the whole cluster (*IBM*, page 77, ll. 6-7) or on a single device in the cluster (*IBM*: page 25: ll. 6-9), which is merely cumulative to the information provided in Applicants' Background. IBM does not automatically and concurrently perform the specified operation on all the active routers, but not on switches and standby routers that also belong to the cluster, as claimed.

Bruckert, Pangrac and *Byrne* do not cure the deficiencies of *IBM* with respect to teaching or suggesting performing a specified operation on all active routers in a cluster, wherein the cluster also comprises switches and standby devices, as claimed. None of the references describes the operation performed only on all active routers, but not on switches and standby routers that are also part of the cluster, as claimed.

No combination of *IBM, Bruckert, Pangrac* and *Byrne* teaches or suggests performing a specified operation only on all active routers in a cluster, but not on switches and standby routers that are also in the cluster, as claimed.

For at least these reasons, the rejections should be reversed.

C. THE EXAMINER FAILS TO ESTABLISH A *PRIMA FACIE* CASE OF OBVIOUSNESS

1. The Examiner fails to provide a sufficient "rational underpinning" in the references or other evidence as a motivation to combine the references

As the Office states in its own summary of law applying to patentability, MPEP 2143.01, "rejections on obviousness cannot be sustained by mere conclusory statements; instead, there must be some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness." *KSR*, 550 U.S. at ___, 82 USPQ2d at 1396 quoting *In re Kahn*, 441

F.3d 977, 988, 78 USPQ2d 1329, 1336 (Fed. Cir. 2006). In the grounds for rejection, the Examiner alleges that the motivation to combine the four (4) references (*IBM, Bruckert, Pangrac* and *Byrne*) is "to provide fault tolerance." (Final Office Action: page 5, ll. 12-13) While this assertion is "articulated" in the sense of *KSR* and *Kahn*, it is insufficient as a motivation to combine. The broad goal "to provide fault tolerance" could not have reasonably suggested, to a skilled person at the time of the invention, the particular claimed combination. Even if the skilled person would have wanted to increase fault tolerance, there is no evidence of record to suggest that the skilled person would have thought of Applicants' specific claimed approach. In other words, the goal of fault tolerance is so vague and non-specific that it cannot provide evidence to use the particular approach that Applicants claim, in which some but not all elements of a cluster are reconfigured in response to a command to configure the whole cluster.

None of the cited art teaches or suggests receiving an operation to be performed only on all active routers in a cluster, wherein the cluster also comprises switches and standby routers, as claimed. Furthermore, none of the cited references implies performing the operation only on all active routers in the cluster, but not on the switches and standby routers that are also in the cluster, as claimed.

For at least these reasons, the rejections should be reversed.

2. The Examiner improperly dissects the claims

In the Office Action, different parts of a single feature are dissected and allegedly taught by the different references. When evaluating the scope of a claim, every limitation in the claim must be considered. The Office may not dissect a claimed invention into discrete elements and then evaluate the elements in isolation. Instead, the claim as a whole must be considered. MPEP 2106 II.C, quoting *Diamond v. Diehr*, 450 U.S. 175, 188-89, 209 USPQ 1, 9 (1981). Thus, the question is whether the **claim as a whole** is shown or suggested in the cited art. A piecemeal analysis is **not** sufficient. For example, after **ten** Office Actions, the Examiner has been unable to find a single reference disclosing the entire claim feature of receiving an operation to be performed only on all active routers as a whole in a cluster, wherein the cluster also comprises

switches and standby routers, as claimed.

Thus, there is no reason why a person of skill in the art would have combined four references (*IBM, Bruckert, Pangrac* and *Byrne*). The Examiner offered no rationale for why a person of skill in the art would have combined the references to provide the particular claim feature.

For at least all of the foregoing reasons, the Examiner has failed to establish a *prima facie* case of obviousness to combine the references. For all these reasons, the rejection of independent claims 1 and 26 should be reversed.

D. THE DEPENDENT CLAIMS ARE PATENTABLE BASED ON FEATURES OF THE INDEPENDENT CLAIMS

The independent claims have been erroneously rejected as explained above. The independent claims are patentable over the cited references. The dependent claims are also patentable over the cited references at least by virtue of their dependency. Thus, no combination of the cited references could teach all of the features of the dependent claims. For at least these reasons, the rejection of all the dependent claims should be reversed.

E. CONCLUSIONS & PRAYER FOR RELIEF

For the reasons set forth above, it is respectfully submitted that all of the pending claims in condition for allowance, that the rejections and objections lack the requisite factual basis and legal basis, and that all rejections and objections should be reversed. Appellants respectfully request the Board to reverse all rejections and objections to the pending claims.

Respectfully submitted,
HICKMAN PALERMO TRUONG & BECKER LLP

Dated: May 3, 2011

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Appendices Required under Rule 41.67 Follow

VIII. CLAIMS APPENDIX

1. A method, comprising the computer-implemented steps of:

receiving, at a single console control point for a network device cluster, user input specifying an operation to be performed concurrently on all active routers in a plurality of active routers as a whole and only on the plurality of active routers;

automatically and concurrently performing the specified operation only on all the active routers in the plurality of active routers in the network device cluster by transforming the specified operation into one or more device-specific operations for each of the active routers in the plurality of active routers;

wherein the user input specifies a configuration command for the network device cluster;

automatically and concurrently communicating the configuration command to each of the active routers in the plurality of active routers;

wherein the network device cluster comprises a first switch device, the plurality of active routers, one or more standby routers, and a second switch device;

wherein the first and second switch devices are associated with different networks;

concurrently reconfiguring each of the active routers in the plurality of active routers in the network device cluster based on reconfiguration information;

wherein the reconfiguring causes a change of one or more connections between the active routers in the plurality of active routers and the switch devices.

2. (Cancelled)

3. The method as recited in Claim 1, further comprising the steps of:

subscribing a management process to an event bus;

subscribing each of the active routers to the event bus; and

publishing the configuration command in an event on the event bus.

4. The method as recited in Claim 3, further comprising the steps performed at each of the active routers of:

receiving the event;

extracting the configuration command from the event; and

presenting the configuration command to a native console.

5. The method as recited in Claim 1, wherein the configuration command is a configuration load command.

6. The method as recited in Claim 1, wherein the configuration command is a configuration execution command.

7. The method as recited in Claim 1, wherein the user input is received in a graphical user interface, and further comprising the step of displaying an execution log for the configuration command within the same graphical user interface in which the user input is received.

8. The method of claim 1, further comprising:

receiving, at a single console control point for the network device cluster, first user input requesting an operational overview of the cluster; and

generating and displaying an operational overview of the cluster, wherein the operational overview comprises a status indicator, connection information, failed device information, and a first access icon for accessing information about a stack;

wherein the network device cluster further comprises the stack consisting of one or more active routers and one or more standby routers.

9. The method as recited in Claim 8, further comprising the steps of:

receiving second user input that selects the first access icon;

generating and displaying a device operational overview for devices in the cluster, wherein the device operational overview comprises, for each router in the stack of

the cluster, a device status indicator, device connection information unique for each router within the cluster, failed connection information, and a second access icon for accessing information about connections of the first and second switch devices and the stack.

10. The method as recited in Claim 9, further comprising the steps of:

receiving third user input that selects the second access icon;

generating and displaying a connection operational overview for connections of the cluster, wherein the connection operational overview comprises, for each connection of the stack, a connection status indicator and one or more values of attributes associated with the connection.

11. The method of claim 1, further comprising:

receiving first user input in a user interface (UI) at a single console control point for the network device cluster that identifies the first switch device and the second switch device for the cluster;

receiving second user input in the UI that identifies a plurality of network elements for a router stack of the cluster;

receiving third user input in the UI that defines at least one first connection of the first switch device in association with at least one network element in the stack, and at least one second connection of the second switch device in association with the at least one network element in the stack; and

associating the first, second, and third user input in a cluster object that programmatically represents the cluster.

12. The method as recited in Claim 11, further comprising the steps of:

receiving information specifying that a network element in the cluster has failed;

based on the cluster object, selecting a substitute network element from among one or

more available network elements from the router stack;

receiving connection configuration information from the identified network element; and

based on the connection configuration information, re-configuring the substitute network element and the first and second switch devices associated with the identified network element, wherein the re-configuring causes the first and second switch devices to change one or more connections from the identified network element to the substitute network element.

13. The method as recited in Claim 12, wherein the step of re-configuring the substitute network element and the one or more switch devices associated with the identified network element further comprises the steps of:

creating one or more sets of commands to configure the first and second switch devices; and

publishing a configuration load event that includes the commands and that targets only the first and second switch devices associated with the identified and substitute network elements.

14. The method as recited in Claim 13, wherein the step of re-configuring the substitute network element and the first and second switch devices associated with the identified network element further comprises the steps of:

in response to the configuration load event, each of the first and second switch devices connecting to a cluster manager and receiving a particular set of commands;

at the first and second switch devices, processing the particular set of commands, wherein processing includes causing the first and second switch devices to change the one or more connections from the identified network element to the substitute network element; and

at each of the first and second switch devices, publishing a configuration complete event to acknowledge completing the processing of the particular set of commands.

15. The method as recited in Claim 11, wherein the third user input includes information defining a set of commands used to reconfigure at least one switch device.

16. The method as recited in Claim 11, wherein the first, second and third user inputs are stored persistently at a cluster manager; and wherein each of the switch devices and the plurality of network elements persistently stores startup configuration information, but does not store the first, second and third user inputs.

17. The method as recited in Claim 11, wherein the second user input comprises information identifying one or more network elements from the plurality of network elements as back-up network elements.

18. The method as recited in Claim 11, wherein the second user input comprises information identifying one or more network elements from the plurality of network elements as stand-by network elements.

19. The method as recited in Claim 11, further comprising the step of receiving a fourth user input in the UI that modifies information received in the second and third user inputs.

20. The method as recited in Claim 11, further comprising the step of receiving a fourth user input in the UI that identifies the at least one network element as removed from the plurality of network elements.

21. The method as recited in Claim 11, further comprising the step of receiving a fourth user input in the UI that disassociates at least one switch device with at least one network element from the plurality of network elements.

22. The method as recited in Claim 11, wherein the first, second, and third user inputs define a logical stack object, wherein the logical stack object is identified by a stack name and represents a logical grouping of at least two switch devices and at least one network element.

23. The method as recited in Claim 22, further comprising the step of receiving a fourth user input in the UI that requests sending a command to all switch devices and all network elements represented by the logical stack object.

24. – 25. (Cancelled)

26. An apparatus comprising:

one or more processors;

means for receiving user input at a single console control point for a network device cluster, the user input specifying an operation to be performed concurrently on all active routers in a plurality of active routers as a whole and only on the plurality of active routers;

means for automatically and concurrently performing the specified operation only on all the active routers in the plurality of the active routers in the network device cluster by transforming the specified operation into one or more device-specific operations for each of the active routers in the plurality active routers;

means for automatically and concurrently communicating the configuration command to each of the active routers in the plurality of active routers;

wherein the network device cluster comprises a first switch device, the plurality of active routers, one or more standby routers, and a second switch device;

wherein the first and second switch devices are associated with different networks;

means for concurrently reconfiguring each of the active routers in the plurality of active routers in the network device cluster based on reconfiguration information;

wherein the reconfiguring causes a change of one or more connections between the active routers in the plurality of active routers and the switch devices.

27. The apparatus of Claim 26, wherein the receiving step comprises receiving user input specifying a configuration command for the cluster; and wherein the performing step comprises

automatically communicating the configuration command to each of the active routers in the plurality of active routers.

28. The apparatus of Claim 27, further comprising:

means for subscribing a management process to an event bus;

means for subscribing each of the active routers to the event bus; and

means for publishing the configuration command in an event on the event bus.

29. The apparatus of Claim 28, further comprising:

means for receiving the event;

means for extracting the configuration command from the event; and

means for presenting the configuration command to a native console.

30. The apparatus of Claim 27, wherein the configuration command is a configuration load command.

31. The apparatus of Claim 27, wherein the configuration command is a configuration execution command.

32. The apparatus of Claim 27, wherein the user input is received in a graphical user interface, and further comprising means for displaying an execution log for the

configuration command within the same graphical user interface in which the user input is received.

33. – 35. (Cancelled)

IX. EVIDENCE APPENDIX

None.

X. RELATED PROCEEDINGS APPENDIX

None.

XI. CERTIFICATE OF SERVICE

Not applicable.